

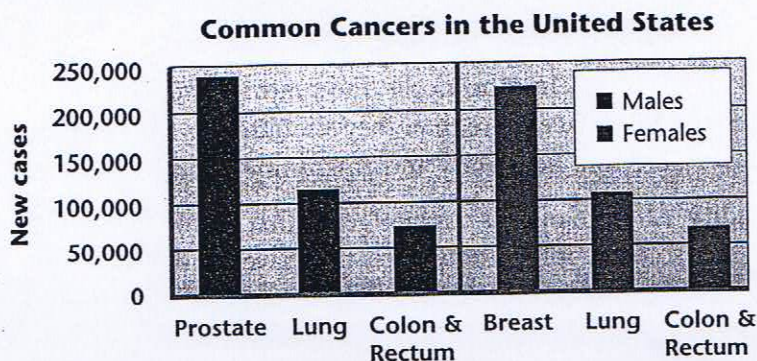
# Cancer

Pg. 609-610

## Section 2

### Warm-Up

**Health Stats** This graph shows the most common cancers in males and females in 2012.



**WRITING** Is lung cancer more common in males or females? Why do you think this is the case?

### Objectives

- **Describe** how cancer affects the body.
- **Identify** the tests and treatments for cancer.
- **List** seven ways you can prevent cancer.

### Vocabulary

- cancer
- tumor
- malignant
- metastasis
- oncogene
- carcinogen
- biopsy

## How Cancer Affects the Body

In the United States, cancer is the second leading cause of death in adults, just behind cardiovascular disease. **Cancer** is a group of diseases that involves the rapid, uncontrolled growth and spread of abnormal cells. **Cancer harms the body by destroying healthy body tissues.**

Cancer cells typically form a mass of tissue called a **tumor**. The word **malignant** (muh LIG nunt) is used to describe a cancerous tumor. A tumor that is not cancerous is called a benign tumor.

The cells of a malignant tumor grow into surrounding tissues and destroy them. In addition, some cancer cells may break away from the original tumor. The cells travel through blood vessels or lymph vessels to other parts of the body. There the cancer cells may start new tumors. The spread of cancer from where it first develops to other parts of the body is called **metastasis** (muh TAS tuh sis).

Many cancers can be cured if they are detected early and treated promptly. Because cancer cells eventually replace normal cells, death may result if the cancer is not treated.



How much do you know about cancer? What questions do you have?



**FIGURE 7** - This man is wearing a respiratory mask to protect himself from carcinogens such as asbestos.



**Causes of Cancer** In normal body cells, a control system keeps cell reproduction in check. In cancer cells, the control system has gone haywire, and cells reproduce more than they should. This damaged control system can result from hereditary and environmental factors.

- ▶ **Heredity** All human cells contain genes that control cell reproduction. But some people inherit genes that have a tendency to change, or mutate, into forms that allow cells to reproduce too rapidly. A normal gene that has changed into a cancer-causing gene is called an **oncogene** (AHN kuh jeen). People whose cells contain oncogenes may develop certain forms of cancer.
- ▶ **Environment** The environment contains cancer-causing agents known as **carcinogens** (kahr SIN uh junz). Carcinogens can cause mutations in genes that control cell reproduction. The range of possible carcinogens is broad. Ultraviolet light and X-rays can cause mutations. So can tobacco products, asbestos, arsenic, and some pesticides. Some types of viruses are also carcinogens.

**Types of Cancer** Cancer can occur in almost any part of the body. A cancer is named according to the part of the body where it first develops. Figure 8 surveys some different types of cancer.

Some cancers are rare. Others are more common. For example, one form of skin cancer—basal cell carcinoma—is the most common cancer that occurs in the United States. Fortunately, this common form of skin cancer is rarely life-threatening, especially if it is detected early. Another form of skin cancer, called melanoma (mel uh NOH muh), is less common but can be much more serious.

Many cancers are curable if they are caught early, including testicular cancer and breast cancer. Other cancers are hard to detect early in their development and pose a bigger challenge for treatment. Symptoms of lung cancer, for example, usually do not appear until the disease has spread.



What carcinogens are you exposed to? How can you protect yourself from them?



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PearsonSuccessNet.com

**For:** More on cancer



**FIGURE 8** Symptoms, screening methods, and prevention strategies vary for each type of cancer.  
**Classifying** Which cancers affect both males and females?

## Types of Cancers

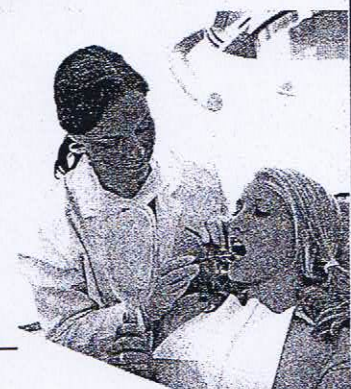
Cancer	Symptoms	Screening	Prevention
Skin	A mole that changes size, shape, or color; tenderness, itching, or pain around a mole	<ul style="list-style-type: none"> <li>• Check skin regularly for moles</li> </ul>	<ul style="list-style-type: none"> <li>• Avoid extended time in the sun</li> <li>• Wear sunblock</li> <li>• Do not use tanning salons</li> </ul>
Prostate	If advanced, painful or burning urination, blood in the urine, or pain in the lower back or pelvis	<ul style="list-style-type: none"> <li>• Regular checkups for men</li> <li>• Rectal examination</li> <li>• PSA (prostate-specific antigen) blood test</li> </ul>	
Breast	Unusual lump in the breast	<ul style="list-style-type: none"> <li>• Perform monthly breast self-exams</li> <li>• Mammogram</li> </ul>	
Lung	Persistent cough; chest pain; recurrent pneumonia or bronchitis	<ul style="list-style-type: none"> <li>• Chest X-ray</li> </ul>	<ul style="list-style-type: none"> <li>• Do not smoke</li> </ul>
Colorectal	Bleeding from the rectum; blood in the feces; changes in bowel habits	<ul style="list-style-type: none"> <li>• Colonoscopy</li> </ul>	<ul style="list-style-type: none"> <li>• Eat a diet low in saturated fat and high in fiber</li> </ul>
Cervical	Abnormal vaginal bleeding	<ul style="list-style-type: none"> <li>• Have regular Pap tests</li> </ul>	<ul style="list-style-type: none"> <li>• Avoid HPV infection by practicing abstinence</li> </ul>
Oral	Lumps in the mouth; a sore in the mouth that bleeds easily; a red or white patch in the mouth	<ul style="list-style-type: none"> <li>• Have regular dental checkups</li> </ul>	<ul style="list-style-type: none"> <li>• Do not smoke and do not use smokeless tobacco products</li> <li>• Do not drink alcohol</li> </ul>
Non-Hodgkin's Lymphoma	Swollen lymph nodes	<ul style="list-style-type: none"> <li>• X-ray</li> <li>• CT scan</li> </ul>	
Ovarian	Usually no early symptoms	<ul style="list-style-type: none"> <li>• Regular and thorough pelvic exams for women</li> </ul>	
Leukemia	Weight loss; recurrent infections; fatigue; swollen lymph nodes	<ul style="list-style-type: none"> <li>• Blood test</li> </ul>	

▲ Mole



◀ Chest X-ray

Dental  
checkup  
▼





# Media Wise

## Evaluating Tanning Products

There is a lot of information available about the dangers of too much sun exposure. But, many young people still tan. Evaluate products that claim to give you a "healthy tan" using this questionnaire.



Does the product's labeling caution about the dangers of ultraviolet (UV) radiation?

Yes

No

Does the product provide SPF (sun protection factor) information?

Yes

No

Does the product encourage you to minimize your exposure to the sun or other UV radiation?

Yes

No

Does the product recommend other precautions—such as wearing sunglasses or a hat?

Yes

No

A "No" answer to one or more questions indicates that using the product may endanger your skin.

**Activity** Use the checklist to evaluate a tanning product. Then write a paragraph explaining why the tanning product you chose may or may not be healthy for your skin. **WRITING**

## Detecting and Treating Cancer

Seven common warning signs of cancer are listed in Figure 9. If you experience any of these warning signs, you should seek medical attention. The key to curing cancer is early detection and treatment.

**Tests** Screening tests, such as mammograms, chest X-rays, and endoscopies, can detect cancers before any symptoms appear. If cancer is suspected from screening test results, surgeons may remove a small piece of the tissue in question to examine it for signs of cancer. This procedure is called a **biopsy** (BY ahp see).

**Treatments** Cancer treatments depend on the type of cancer, its location, and its stage of development.

- Surgery can remove part or all of a malignant tumor.
- Radiation therapy can kill cancer cells and slow tumor growth.
- Chemotherapy (kee moh THEHR uh pee) uses drugs to slow the reproduction of cancer cells. Immunotherapy (im yuh noh THEHR uh pee) uses drugs to stimulate the body's immune system to attack cancer cells.

When the signs or symptoms of cancer disappear, the cancer is said to be in remission. Most cancers that stay in remission for five years are considered cured. Sometimes, however, the cancer returns after five years. A second occurrence of the same cancer is usually more difficult to treat.



## Preventing Cancer

Early detection of cancer cannot prevent the disease, but it may prevent the cancer from killing you. Regularly examining your skin and breasts or testicles for abnormal lumps or growth is a good habit to start. Self-exams and seeing your doctor regularly can help you prevent the further development of a cancer—if one is present in your body—by catching it early.

Detecting cancer early is very important, but avoiding cancer altogether is ideal. Although the specific cause of most cancers is unknown, certain behaviors have been shown to decrease the risk of cancer.

- ▶ Do not use any form of tobacco. Tobacco and tobacco smoke contain carcinogens. Smokeless tobacco, or snuff, can cause oral cancer.
- ▶ Avoid alcohol. Drinking, especially along with smoking, greatly increases the risks of oral cancer and liver cancer.
- ▶ Avoid the sun's ultraviolet rays. Wear protective clothing and use sunscreen. Do not use tanning beds.
- ▶ Choose a diet low in saturated fat and cholesterol. Instead, eat plenty of vegetables, fruits, and whole grains. Such a diet is rich in vitamins and fiber, which may reduce the risks of some cancers.
- ▶ Exercise regularly and maintain a healthy weight.
- ▶ Avoid unnecessary X-rays, especially during pregnancy.
- ▶ Avoid known carcinogens. If you cannot avoid them, wear protective clothing or equipment.

## Section 2 Review

### Key Ideas and Vocabulary

1. How does cancer harm the body? What changes in cells allow cancer to develop?
2. What is a **tumor**? When is a tumor considered malignant?
3. What is a **carcinogen**?
4. How does a doctor determine if a person has cancer? If cancer is present, what types of treatment might the patient receive?
5. Name four ways you can reduce your risk of developing cancer.

### Seven Warning Signs of Cancer

- **C**hange in bowel or bladder habits, such as constipation, diarrhea, or incomplete emptying of the bowel
- **A**sore throat that does not heal
- **U**nusual bleeding or discharge, particularly from the rectum or vagina
- **T**hickening or lump in the breast or elsewhere
- **I**ndigestion or difficulty in swallowing
- **O**bvious change in a wart or mole, such as growth, discharge, or unusual appearance
- **N**agging cough or hoarseness

**FIGURE 9** If you experience any of these warning signs, see your doctor. Notice that the first letters of the warning signs spell "caution."

### Health at Home

**Cancer Prevention** Many types of cancer can be prevented by practicing healthy behaviors. Discuss some cancer prevention tips with your family. Together, list some changes family members can make in their current behaviors. Post the list on your refrigerator or in another visible location. **WRITING**

### Critical Thinking

6. **Comparing and Contrasting** Distinguish between a normal gene and an oncogene.
7. **Applying Concepts** Some cancer cells live much longer than noncancerous cells. How might this play a role in the development of a tumor?

